

cally, but are grouped together by the color of their flowers. The white to green flowers form one section of the arrangement, the pink to red another, while the blue to purple flowers, yellow to orange flowers, shrubs and miscellaneous plants, form other sections of the book, which is provided with useful indexes of the scientific and common English names.

JOHN W. HARSHBERGER.

## PROCEEDINGS OF THE CLUB

FEBRUARY 27, 1907

The Club was called to order at 3:30 P. M. at the museum building of the New York Botanical Garden, with Dr. William A. Merrill in the chair. Twenty-one persons were present.

The names of Dr. Ernst A. Bessey, Subtropical Laboratory, Miami, Fla., and Dr. William Mansfield, College of Pharmacy, N. Y. City, were presented for membership.

Dr. Herbert M. Richards, chairman of the committee appointed to arrange for the reception given on December 26, 1906, to botanists in attendance upon the scientific meetings of Convocation Week, presented a report. The report was accepted and ordered placed on file, and the committee was discharged.

Resignations were received from Mr. S. Mendelson Meehan, Germantown, Pa., and Miss Dorothy A. Young, 38 Park Ave., Passaic, N. J. The death of Mr. Walter S. Logan, which occurred on July 19, 1906, was reported.

On motion the secretary cast the ballot of the club, electing Dr. Bessey and Dr. Mansfield to membership.

The following scientific program was presented:

"Tubular Glands in the Corn Embryo," by C. Stuart Gager.

The literature dealing with the transformation of starch to sugar in the corn grain during germination was first briefly reviewed, and its bearing on the structural anomaly subsequently described was pointed out. This anomaly consisted of invaginations of the glandular epithelium of the scutellum into the tissue of the latter, in such a way as to form true glands of the tubular and sub-racemose type.

The significance of these glands, as in harmony with the theory that the scutellar epithelium is principally an organ of secretion, was also indicated. The paper was illustrated by microscopic preparations and photomicrographs, and will be published in full in the *Bulletin* of the Club.

A brief discussion followed.

"Explorations in southern Florida," by John K. Small.

The exploration was confined to the larger group of islands lying between Miami and camps Longview and Jackson, and to a wholly unexplored section of the everglades lying between the present terminus of the Florida East Coast Railway and Key Largo, including a portion of Cross Key. This latter island, together with a parallel and almost similar formation, constitutes the only natural and approximately complete land-connection between the Florida Keys and the mainland of the peninsula. The chain of everglade keys is a miniature of the Florida Keys, both in its crescent shape and its flora, and also of the West Indies in the character of its vegetation. It is surrounded by the everglades, except where the upper islands touch Biscayne Bay at points from Miami to Cutler. Before these islands were elevated to their present altitude, they were probably surrounded by a shallow sea, just as the Florida Keys are at the present time. This being the case, the tropical American flora now inhabiting them may easily be accounted for. After sufficient elevation had taken place, the surrounding sea was transformed into the vast spring now known as the everglades. Conditions becoming favorable, the plants of the flora of northern peninsular Florida advanced southward and naturally took complete possession of the area that was formerly the sea, thus surrounding and isolating the wholly different flora of the islands. In fact, the two floras are so sharply delimited that one can often stand with one foot on plants characteristic of the high northern regions and the other on plants restricted to the tropics. It is not an uncommon experience to see colonies of plants common in Canada, such as the arrow-arum (*Peltandra*), the lizard's tail (*Saururus*), and the ground-nut (*Apios*), growing side by side with tropical palms, cycads, orchids, and bromeliads.

The total area of these islands is perhaps about one hundred and fifty square miles. Those that have been explored have yielded between five and six hundred species of native flowering plants, surely a very large number considering the fact that the solid rock is exposed everywhere and that soil in the ordinary sense of the word does not occur there. The close relationship of this flora to that of the West Indies is now established by the fact that considerably more than one half of the species found on the islands south of Miami are also native in Cuba and the Bahamas.

Since the publication of Dr. Small's last report on exploration in southern Florida, and a subsequently printed paper on the species added to the flora of that state, he has secured over fifty more species not before known to grow on the North American mainland. Eight or ten of these are complete novelties, inasmuch as they are not yet described. Noteworthy among the recent collections, which make an aggregate of 3,200 specimens, are seven specimens not previously included in the tree flora of the United States.

After an interesting discussion of Dr. Small's paper the Club adjourned at five o'clock.

C. STUART GAGER,  
*Secretary.*

MARCH 12, 1907

The Club met at the American Museum of Natural History at 8:15 P. M., with President Rusby in the chair. Ten persons were present.

The reading and approval of the minutes for February 27, 1907, was followed by the presentation of the name of Mrs. Samuel Weiss, Depot Lane, Washington Heights, N. Y. City, for membership.

The resignation of Mr. H. M. Stephens was read and accepted. On motion the secretary cast the ballot of the Club electing Mrs. Weiss to membership.

The following scientific program was presented:

"Remarks on Regeneration," by Miss Elsie M. Kupfer.

The various meanings which have been assigned to the word regeneration were first discussed. It was brought out that, while

some writers would limit the term to the restoration of embryonic tissue in root and shoot, others would include within the scope of the process merely the development of buds present before injury. It seemed best to take the middle ground and consider as a regeneration any organ formed anew after injury or loss.

The different plant organs were used as cuttings and their behavior examined when buds were absent. On the roots which formed shoots it was found that these were not confined to the upper (basal) surface, but could appear from the apical as well, or from the middle of the root. The roots of less than half of the species used formed shoots, while all produced roots not always as true regenerations, but as outgrowths from the uninjured cambium. Budless stems proved able to root with ease but were unable to replace the buds which had been cut out. Such parts continued growing for fifteen months without undergoing any tissue change, while a part on which a single bud was left established secondary vascular strands between the bud and the new roots. The pseudobulb of an orchid proved able to regenerate roots and a shoot from the base, and in a conifer the apparent "restoration" of a single root on the seedling and in an older stem-part was described. Of eighty-two species of leaves used in experimentation only two new ones were found which produced a shoot, though the large majority formed roots. Modified leaves of various types, such as phyllodes and bulb-scales, were also found to be able to root. Regeneration was likewise reported in the inflorescence of *Dudleya californica* and *Ruellia rosea*, in the fruits of *Phaseolus vulgaris* and *P. lunatus*, and finally in the "head" of the alga *Penicillus capitatus*.

An extended discussion followed.

Owing to the lateness of the hour, Dr. Rusby did not present his paper on "Field Observations of the Past Year," but exhibited a few interesting plants collected at Oscoda, Michigan.

Dr. Southwick exhibited several interesting specimens of the seeds of *Ricinus*.

The meeting adjourned at ten o'clock.

C. STUART GAGER,  
Secretary,